

U430 U431

matched dual n-channel JFETs designed for . . .



Siliconix

Performance Curves NZA
See Section 5

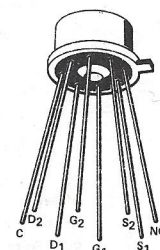
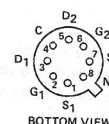
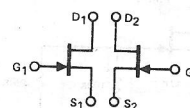
- **Balanced Mixers**
- **Differential Amplifiers**

BENEFITS

- Low Noise Figure
- Low IMD
- 30 dBm Intercept Point

ABSOLUTE MAXIMUM RATINGS (25°C)

Gate-Drain or Gate-Source Voltage	-25 V
Gate Current	10 mA
Total Continuous Power Dissipation at (or Below) 25°C Free Air Temperature Derate 4 mW/°C to 150°C	500 mW
Continuous Device Dissipation (Each Side) at (or Below) 25°C Free Air Temperature Derate 2.4 mW/°C to 150°C	300 mW
Storage Temperature Range	-65 to +200°C
Lead Temperature (1/16" from case for 10 seconds)	300°C

TO-99
See Section 7

ELECTRICAL CHARACTERISTICS (25° unless otherwise noted)

Characteristic		U430			U431			Unit	Test Conditions			
		Min	Typ	Max	Min	Typ	Max					
1	S T A T I C	IGSS Gate Reverse Current				-150		-150	pA	VGS = -15 V, VDS = 0 V	T = 150°C	
2						-150		-150	nA			
3		BVGSS Gate-Source Breakdown Voltage	-25		-25				V	IG = -1 μA, VDS = 0 V		
4		VGS(off) Gate-Source Cutoff Voltage	-1.0		-4.0	-2.0		-6.0		VDS = 10 V, ID = 1 nA		
5		VGS(f) Gate-Source Forward Voltage								VDS = 0 V, IG = 10 mA		
6	IDSS Saturation Drain Current (Note 4)	12		30	24		60	VDS = 10 V, VGS = 0 V				
7	D Y N A M I C	gfs Common-Source Forward Transconductance	10		20	10		20	mmho	VDS = 10 V, ID = 10 mA	f = 1 kHz	
8		gos Common-Source Output Conductance			200			200	μmho			
9		Cgs Gate-Source Capacitance			5.0			5.0	pF	VGS = -10 V, VDS = 0 V		f = 1 MHz
10		Cgd Drain Gate Capacitance			2.5			2.5				
11		ēn Equivalent Short-Circuit Input Noise Voltage		10			10		nV √Hz	VDS = 10 V, ID = 10 mA		f = 100 Hz
12	H I F R E Q	gfs Common-Source Forward Transconductance		12			12	mmho	VDS = 10 V, ID = 10 mA	f = 100 MHz		
13		gos Common-Source Output Conductance		0.15			0.15					
14		gig Power-Match Source Admittance		12			12					
15		Gc Conversion Gain (See Note 1)		3.0			3.0					
16		IMD Intercept Point (See Notes 1 and 2)		+30			+30		dB		VDS = 20 V, VGS = 1/2 VGS(off)	
17	M A T C H	IDSS1 Saturation Drain Current Ratio (Note 3)	0.9		1.0	0.9		1.0	dBm			
18		IDSS2 Saturation Drain Current Ratio (Note 3)	0.9		1.0	0.9		1.0	VDS = 10 V	VG = 0 V		
19		VGS(off)1 Gate-Source Cutoff Voltage Ratio (Note 3)	0.9		1.0	0.9		1.0		ID = 1 nA		
			gfs1 Transconductance Ratio (Note 3)	0.9		1.0	0.9		1.0	ID = 10 mA		

NOTES:

1. VHF single-balanced mixer drain load impedance 2k Ω .
2. 2-tone 3rd-order IMD.
3. Assumes smaller value in numerator.
4. Pulse test pulsewidth = 300 μs , duty cycle $\leq 3\%$.

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